

5 CYANOCOBALAMIN LOW VISCOSITY AQUEOUS FORMULATIONS FOR INTRANASAL DELIVERY

Abstract of the Disclosure

A stable pharmaceutical mercury-free aqueous solution of cyanocobalamin comprised of cyanocobalamin and water wherein said solution of cyanocobalamin is suitable for intranasal administration, has a viscosity less than about 1000 cPs, and wherein said solution of cyanocobalamin has a bioavailability of cyanocobalamin when administered intranasally of at least about 7% relative to an intramuscular injection of cyanocobalamin with the proviso that the solution is essentially free of mercury and mercury-containing compounds. The present invention is also directed towards a method for elevating the vitamin B12 levels in the cerebral spinal fluid (CSF) comprising administering intranasally a sufficient amount of a mercury-free cyanocobalamin solution so as to increase the average ratio of vitamin B12 in the CSF to that in the blood serum ($\text{B12 CSF/B12 Serum} \times 100$) to at least about 1.1 comprising intranasally administering an aqueous solution of a cyanocobalamin, wherein said solution of cyanocobalamin has a bioavailability of at least 7% relative to an intramuscular injection of a cyanocobalamin.